

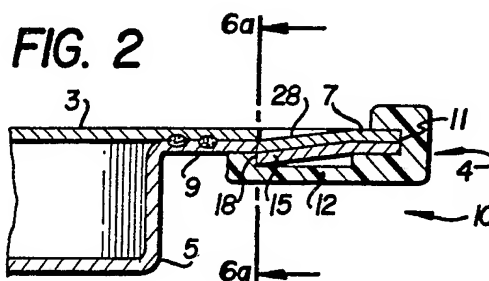
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(54) Structural panel with edge trim

(57) A panel has a flexible trim (4) of U-shaped cross section that can be snap fitted in place on a panel border (11). In order to fit the trim, the panel border (11) is lanced or struck so that depending strip portions (15) or tabs are formed at the border underside,

then the trim (4) is fitted on the border (11) which is received in a trim recess and an underlying portion (12) of the trim (4) engages the lower free ends (18) of the struck portions (15) or tabs to securely hold the trim (4). In one version, the tab can be crimped to positively engage the trim, (Fig. 5 not shown).



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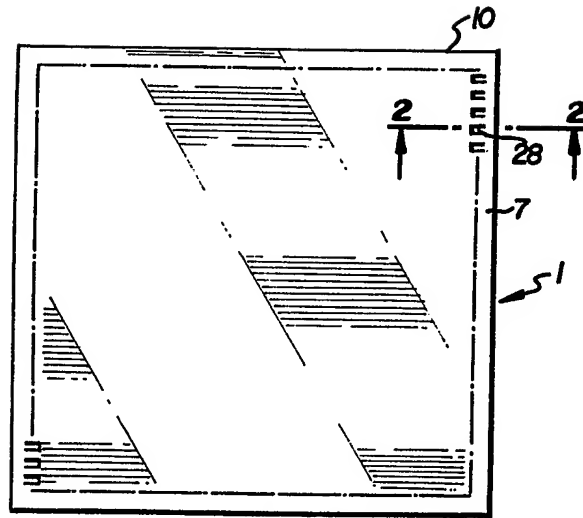
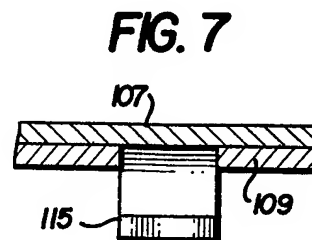
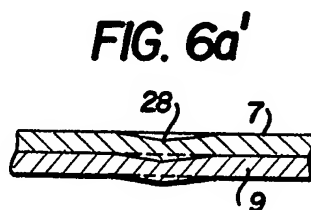
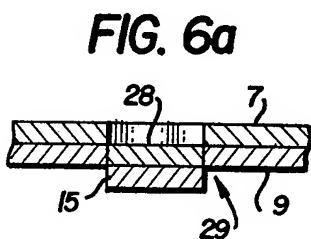
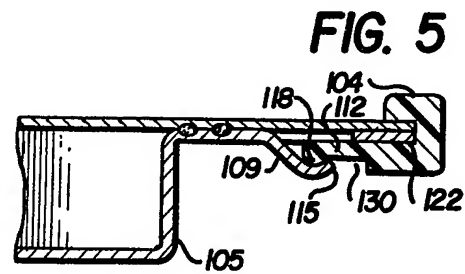
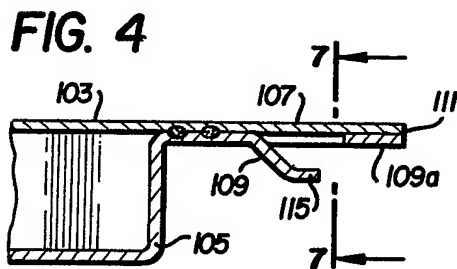
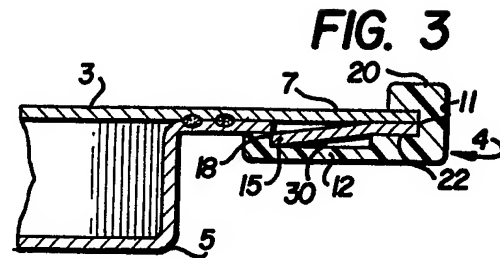
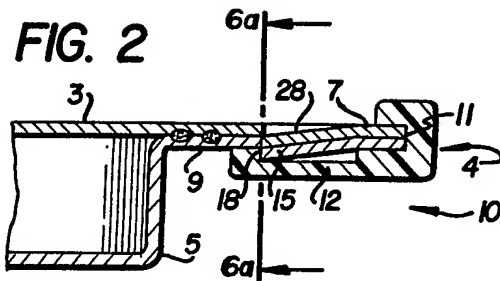


FIG. 1



SPECIFICATION

Structural panel with edge trim

The present invention relates to panels for use in structural assemblies particularly, but not exclusively, for use in elevated flooring. The invention also relates to methods of securing edge trim to panel borders and to panels so formed.

The invention provides a panel for use in a structural assembly comprising a top metal sheet having an outer edge, an underlying bottom plate with outer rim that generally co-extends with said edge in a horizontal direction to form a metal border, and a flexible edge trim on said border that forms the outer panel periphery, the trim having an underlying part that extends inwardly beneath the border to interfit with a depending portion of the bottom plate outer rim, said portion comprising a free end that is spaced below said border, and said free end locking the trim in place to prevent dislodgement of the same.

The invention further provides a method of securing an edge trim to the horizontal border of a metal panel having upper and lower metal members that form the border, comprising striking spaced apart depending portions through at least the lower metal member and within the border of the panel, the depending portions each having a respective free end, mounting an edge trim along the border by fitting the border in a recess of the trim and engaging an underlying trim part with the free ends of the portions.

Some embodiments of the invention will now be described, by way of example only, with reference to the accompanying drawings in which:

- Figure 1 is a plan view of a panel;
- Figure 2 is a section taken along the line 2—2 in Figure 1;
- Figure 3 is a section of a modified panel similar to that of Figure 2;
- Figure 4 is a section of another modified panel similar to those of Figures 2 and 3 but without an edge trim fitted;
- Figure 5 is a further section of the Figure 4 panel with the trim crimped;
- Figures 6a and 6a' are sections of different embodiments taken along the line 6a—6a of Figure 2; and
- Figure 7 is a section taken along the line 7—7 of Figure 4.

In Figures 2 and 3, the panel 1 has an outer periphery 10 formed by a flexible U-shaped edge trim 4. The top sheet 3 has outer edges 7 which can generally co-extend with the outer rims 9 of the bottom plate 5 to form a panel border 11 that receives the trim 4. The edges 7 and rims 9 are located outwardly from the junction of sheet 3 with plate 5 where the sheet and plate are welded together. Except for trim 4, the panel parts are preferably metal and steel sheet and/or plate is normally used. The trim 4 can be vinyl or other suitable flexible and wear-resistant material.

The trim 4 has an outer upright part 20 with a recess 22 that receives border 11 and a lower, horizontal part 12 that ends with an upwardly tip

18. In figure 3, the rim 9 of plate is lanced or punched to present a series of depending portions 15. The free end of such portion 15 engages tip 18 of the trim part 12. In this embodiment, the sheet 3 is welded to plate 5 after the portions 15 are struck from plate 5.

In Figure 2, the outer edges 7 of sheet 3 is preferably struck together with rim 9, usually after the sheet 3 and plate 5 are welded together, to present further depending portions 28 that, together with portions 15 of the rim 9 form tabs that extend downwardly to respective free ends. In both the Figure 2 and Figure 3 panels, it is preferred that only the inner free end of portion 15 engage the trim tip 18. In any case, the free ends of the portions 15 and the trim tips 18 are shaped to have mating retention surfaces once the trim 4 is fitted on the panel border. As border 11 is received in recess 22, the portions 15 substantially simultaneously engage the respective tips 18.

As seen in Figures 6a and 6a', the depending portion 15 and further portion 28 are struck to taper inwardly from the border 11 to the lower free end of the tab. In the Figure 3 structure, only the portion 15 is struck to taper inwardly from border 11 to a lower free end. Otherwise, there are no differences between the panels of Figures 2 and 3.

Depending on the shape of the punches and dies used to form the depending portion, the shapes of those portions and the panel border can vary from a shape U with straight sides as seen in Figure 6a to a gradual V-trough as seen in Figure 6a'. In either case, the portions 15 have ends that are struck free from rim 9 to depend down far enough to engage the trim tip 18 when the trim 4 is snap-fitted on the panel.

In Figures 4, 5 and 7, sheet 103 and plate 105 have outer edges 107 and rims 109 respectively that together form a border 111. The panel periphery is defined by a modified edge trim 104 that has a recess 122 which receives border 111. In this embodiment, the plate rim 109 is lanced at intervals along the panel sides to form downwardly extending strip tabs 115 that are separated from the remainder of the border 111 by substantial distances leaving an outer margin 109a at the lanced sites. Once sheet 103 and plate 105 are welded to one another the trim 104 mounted on border 111, the outer free end of strip tab 115 is crimped over a downwardly extending tip 118 of the trim 104. This arrangement and those of Figures 2 and 3, ensure that the trim is secured in place with a little risk of dislodgement because the contact points of the trim tips 18 or 118 with portions 15 or tab 115 are remote from the panel tread surface or border area where contact or interfitting with other panels takes place.

In Figures 4, 5 and 7, the trim 104 has an underlying horizontal part 112 with a recess 130 and the free end of tab 115 is bent upwardly to extend into recess 130. Thus, the tab 115 bears on the tip 118 and preferably the trim 104 within

recess 130 as well.

In the structures described above, the trim can be disengaged from the panel by releasing the tips 18 or 118 from portions 15 or 115. Release of the trim 4 can be accomplished because the trim material can be distorted and/or stretched. Thereafter, the trim or replacement thereof can be easily snap fitted in place. If the end of tab 115 prevents a snap fit, the tip 118 can be forced up above tab 115 against the bottom of edge 107 until fitting is accomplished.

It will be appreciated that when the edge-trimmed panels as described above are assembled to form a floor, for example, the panel edges are insulated from one another and can be rough-handled without trim dislodgement. This is achieved because the points of trim engagement are located below and within the panel border remote from the surface of the panel or its periphery. The method of fitting the trim also allows it to be easily replaced and released.

CLAIMS

1. A panel for use in a structural assembly comprising a top metal sheet having an outer edge, an underlying bottom plate with outer rim that generally co-extends with said edge in a horizontal direction to form a metal border, and a flexible edge trim on said border that forms the outer panel periphery, the trim having an underlying part that extends inwardly beneath the border to interfit with a depending portion of the bottom plate outer rim, said portion comprising a free end that is spaced below said border, and said free end locking the trim in place to prevent dislodgement of the same.

2. A panel according to claim, wherein both the bottom plate outer rim depending portion and a further portion of the top sheet outer edge extend downwardly from said border together, said underlying trim part including an upwardly extending inner tip that abuts at least the free end of said depending portion.

3. A panel according to claim 1 or 2, wherein said trim is U-shaped and has a recess that receives said border, a cavity in the underlying part being located between said recess and said tip, said free end extending into said cavity.

4. A panel according to any of claims 1 to 3,

wherein said depending portion is struck from said border to taper downwardly in an inward direction, away from said edge trim.

5. A panel according to claim 1, wherein said edge and rim are joined together and co-extend with one another throughout the border.

6. A panel according to claim 1, wherein said portion is a curved tab the outer extremity of which is substantially separated from the top sheet leaving an opening that faces outwardly towards said trim, said underlying part extending in said opening.

7. A panel according to claim 6, wherein said trim is U-shaped and has an outer part with a recess that receives said border, said underlying trim part having an inner end that extends downwardly to bear on the inner side of said tab 1.

8. A panel according to any one of the preceding claims, wherein there are a plurality of depending portions that are spaced apart from one another within said periphery and along said border.

9. A method of securing an edge trim to the horizontal border of a metal panel having upper and lower metal members that form the border, comprising striking spaced apart depending portions through at least the lower metal member and within the border of the panel, the depending portions each having a respective free end, mounting an edge trim along the border by fitting the border in a recess of the trim and engaging an underlying trim part with the free ends of the portions.

10. A method according to claim 9, wherein the border is received in the trim recess and the underlying trim part engages the tips of the free ends of the depending portions substantially simultaneously.

11. A method according to claim 9 or 10, wherein said free end is subsequently crimped to the underlying trim part.

12. A method of securing an edge trim to a panel substantially as herein described with reference to any of the accompanying drawings.

13. A panel having an edge trim secured thereto by a method according to any one of claims 9 to 12.

14. A panel for use in a structural assembly substantially as herein described with reference to any of the accompanying drawings.

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ABSTRACT:

A panel has a flexible trim (4) of U-shaped cross section that can be snap fitted in place on a panel border (11). In order to fit the trim, the panel border (11) is lanced or struck so that depending strip portions (15) or tabs are formed at the border underside, then the trim (4) is fitted on the border (11) which is received in a

trim recess and an underlying portion (12) of the trim (4) engages the lower free ends (18) of the struck portions (15) or tabs to securely hold the trim (4). In one version, the tab can be crimped to positively engage the trim, (Fig. 5 not shown).

